

Notes on the genus *Autographa* Hübner, subgenus *Chrysoaspidia* Hübner (Lep., Noctuidae)¹⁾

by

B. J. LEMPKE

I. A "DOUBLE" OF *Autographa (Chrysoaspidia) festucae* LINNAEUS

Some years ago I visited Mr. C. NIES, an ardent collector of Macrolepidoptera at Deurne (North Brabant prov., Netherlands). He showed me a series of a moth, strongly resembling *Autographa festucae* L., yet clearly differing from it by its smaller size and redder ground colour. Mr. NIES was especially struck by the fact that it made its appearance when the first generation of *festucae* was already in its decline, while the second generation was not yet flying. Having in mind the migratory habits of several of its relatives, I at first suspected that it was a *festucae* form of a more southern latitude, which had reached the Netherlands. However, neither in the literature on the species nor in collections could an indication be discovered that would confirm this suspicion. Eventually I decided to postpone the question till my work on the Dutch catalogue would necessitate a more thorough study of the problem.

In 1964, however, I again paid a visit to Mr. NIES and it goes without saying that the mysterious "*festucae* form" was again a topic of our conversation. But this time I decided to make genitalia preparations both of *A. festucae* and of the "form". The result was very surprising, already the first two slides of males made it absolutely clear that we were dealing with two different species.

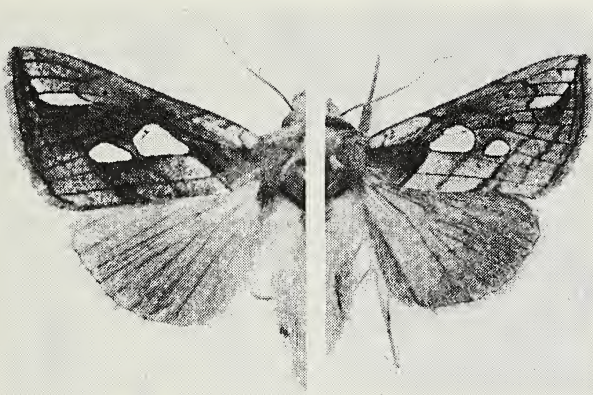
The differences between the two species.

Autographa festucae and its "double" are not difficult to separate on exterior characters. I have already stated that we were struck by the smaller size of the "double" and by its redder ground colour. Especially when the specimens are fresh, their fore wings often have a redder ground colour than in *festucae*. There are also differences in the markings of these wings. Near the apex are four horizontal more or less silvery streaks. In *festucae* the lowest is rather long and narrow. In the "double" it is shorter and broader and therefore more conspicuous. As regards the two discal spots, they are shorter and sometimes higher in the "double" than in true *festucae*, although there is some variation in the shape of these spots. All these differences are clearly seen in text fig. 1. But already almost 60 years ago excellent coloured figures were given by R. SOUTH (Moths Brit. Isles 2, pl. 24, 1907). Fig. 3 is *festucae*, fig. 4 is the double! In the new edition (1961) only one figure is given (Moths 1, pl. 139, fig. 3, 1961). This figure is the double, not *festucae*. Especially the apical silver markings of the right fore wing leave no doubt whatever.

Differences in the genitalia. The males can immediately be

¹⁾ According to Dr. Ch. DUFAY (in litt.) *Chrysoaspidia* is only a subgenus of *Autographa*.

separated by the cornutus in the aedoeagus. It is long and strong in *festucae*, short in the "double". Moreover the latter has a comparatively longer uncus and the ampulla is longer.



J. HUISENGA

Fig. 1. Wing markings of *Autographa festucae* L. (left) and *A. gracilis*, nov. sp. (right).

(Slides of *festucae* showed me that the ♂ of this species does not only possess the strong cornutus, but also often a much less sclerotized bar which is sometimes partly or nearly completely hidden by the cornutus. In one of my slides the latter is absent, so that the shape of the feebler bar can easily be observed, cf. fig. 2, no. 2).

The genitalia of the females can also easily be separated. Apart from the differences in the shape of ostium and ductus, there is a considerable difference in the shape of the bursa. In *festucae* there is in the lower half (as in several other species of the genus) a kind of plate which bears the signum in the shape of a feebly sclerotized patch. In the female of the "double" this plate is absent, but the bursa is widened at its lower end (this character is also found in a few other members of the genus). The signum is stronger sclerotized and is bordered by a ridge which distinctly shows up as a dark line. Cf. fig. 3.

Which of the two is the true *Noctua festucae* of Linnaeus?

Now that it appears that two species closely resembling each other are found in Europe, it is necessary to decide which of the two has to bear the name given by LINNAEUS. His original description reads:

"*P. Noctua spirilinguis cristata, alis deflexis: superioribus flavo ferrugineoque variis: maculis tribus argenteis.*

Alb. ins. t. 84. f. G. H.

Wilk. pap. 8. t. 1. a. 17.

Pet. gaz. t. 7. f. 7.

Act. Stockh. 1748. t. 6. f. 3, 4.

Habitat in Festuca fluitante.

Larva nuda, viridis."

The figures of ALBIN and WILKES represent without any doubt the moth which in all text books is indicated as *festucae* L. with one or other generic name.

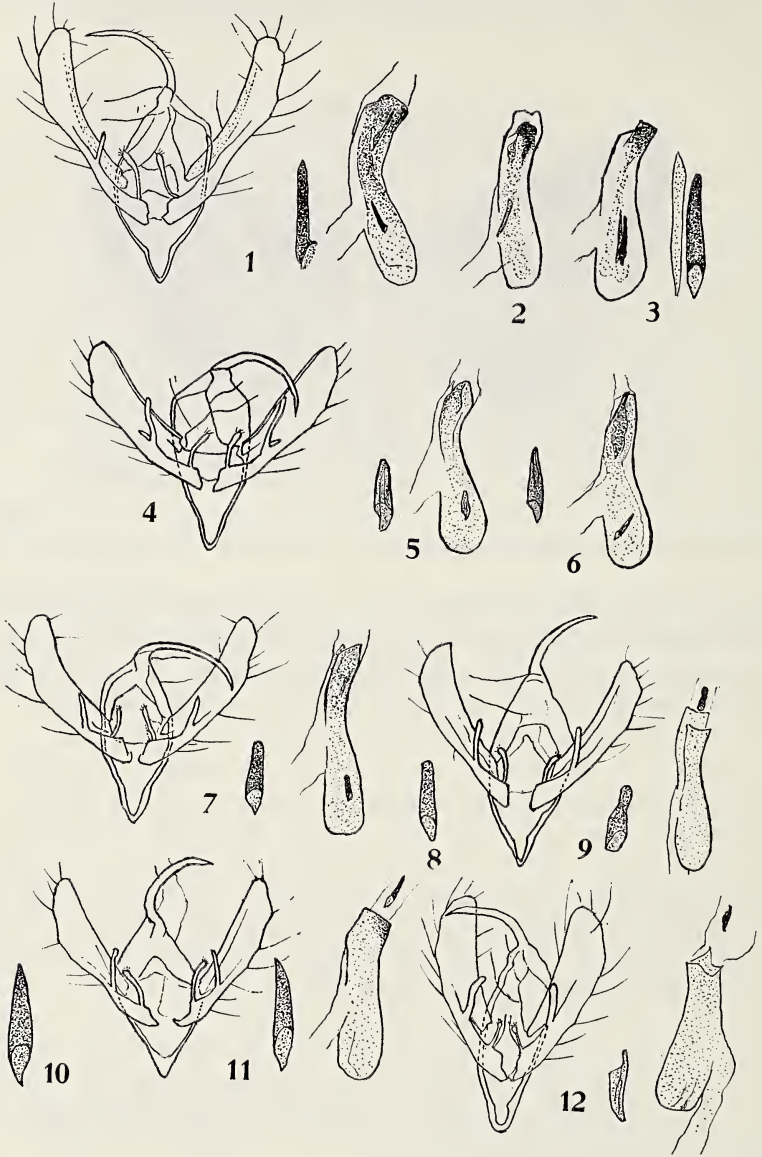


Fig. 2. Male genitalia. 1—3: *Autographa festucae* (prep. 947, 843 [without cornutus], 808). 4—6: *A. gracilis* (prep. 838, 920, 919). 7: *A. festiata* (prep. 922); 8—9: *A. putnami* (prep. 4377 and 4412, Brit. Mus., Nat. Hist.); 10, 11: *A. nichollae* (prep. 4409 and 4406, Brit. Mus., Nat. Hist.); 12: *A. venusta* (prep. 4405, Brit. Mus., Nat. Hist.). $\times 8$ (cornutus $\times 28$).

PETIVER's book is not in a Dutch library so that I cannot consult his figure. The fourth citation refers to an article of DE GEER in *Kongl. Svenska Vetenskaps Academiens Handlingar* 9 : 208—230 (1748). In this article he describes (p. 210) and figures a moth found by RABEN on 17 September 1746. Though the figure is rather crude it no doubt represents a *festucae* in the usual sense.

From all this it is evident that we can continue to indicate the widely spread species by the specific name of *festucae* under which it has always been known.

The name of the "double".

The following species, belonging to the subgenus *Chrysaspidia* Hübner and resembling the double more or less in colour and (or) markings, had to be considered as possible representatives of it: *A. festata* Graeser, described from the Amur region, *A. barbara* Warren, described from Morocco, and *A. putnami* Grote, described from North America.

1. *A. festata* Graeser. The collection of the Amsterdam Zoological Museum contains a small series of the species, among which is also a female. I was at once struck by the similarity between this species and the "double". The shape of the apical silver spots is practically the same. However, *A. festata* is smaller, and its discal silver spots are always united, at least as far as my experience goes, whereas in the "double" they touch each other only exceptionally, just as in *Cbr. festucae*. Moreover the head, collar and patagiae of *festata* are paler, not rusty-red, but more yellowish.

The genitalia proved that *festata* is not conspecific with the "double". Both have in the ♂ a strikingly long uncus, but the cornutus is differently shaped and it does not show in *festata* the faint sclerotized ridges which I found in all specimens of the "double" I examined, cf. figure 2. The ♀ shows distinct differences in the size and shape of the bursa. The sclerotized patch is feebler and is not bordered by a sclerotized darker ridge.

2. *A. barbara* Warren. This species was described from a ♀ from Morocco in SEITZ, *Gross-Schmetterl.* 3 : 347 (1913) and figured on plate 64 d fig. 3. Up till now it has remained the only specimen known of the species.

Mr. D. S. FLETCHER kindly sent me a photograph of the holotype, which is in the collection of the British Museum (Nat. Hist.). It is reproduced on plate 1, fig. 12. Compared with specimens of the "double" the following differences are apparent: the lowest of the apical silver spots is longer and narrower than in the "double", and the two discal spots are also differently shaped; especially the outer one is narrower and longer than in any of the many specimens of the "double" I have seen.

The span of the fore wings of the *barbara* holotype is about 30 mm. Notwithstanding its comparatively large size its genitalia are considerably smaller than those of the "double" female, as is clearly seen in fig. 3. (The female of the "double" the genitalia of which are figured, also had a wing span of 30 mm!). Moreover the sclerotized patch is different, as it is longer and is positioned lower. All this points in my opinion to the one conclusion that *barbara* and the "double" are not conspecific.

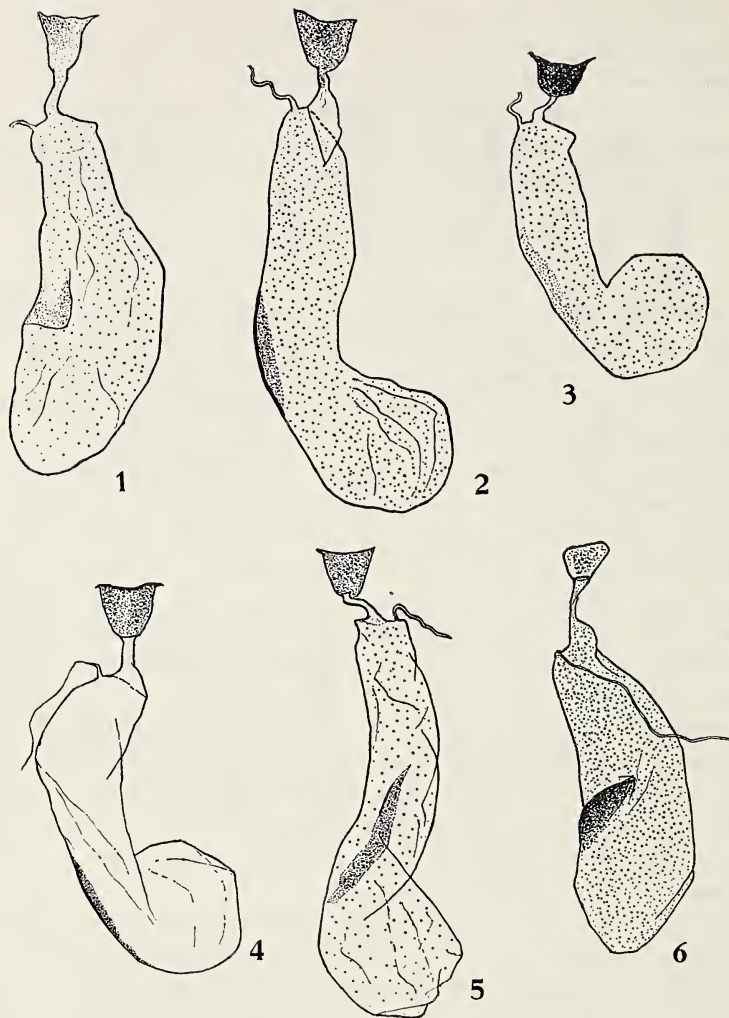
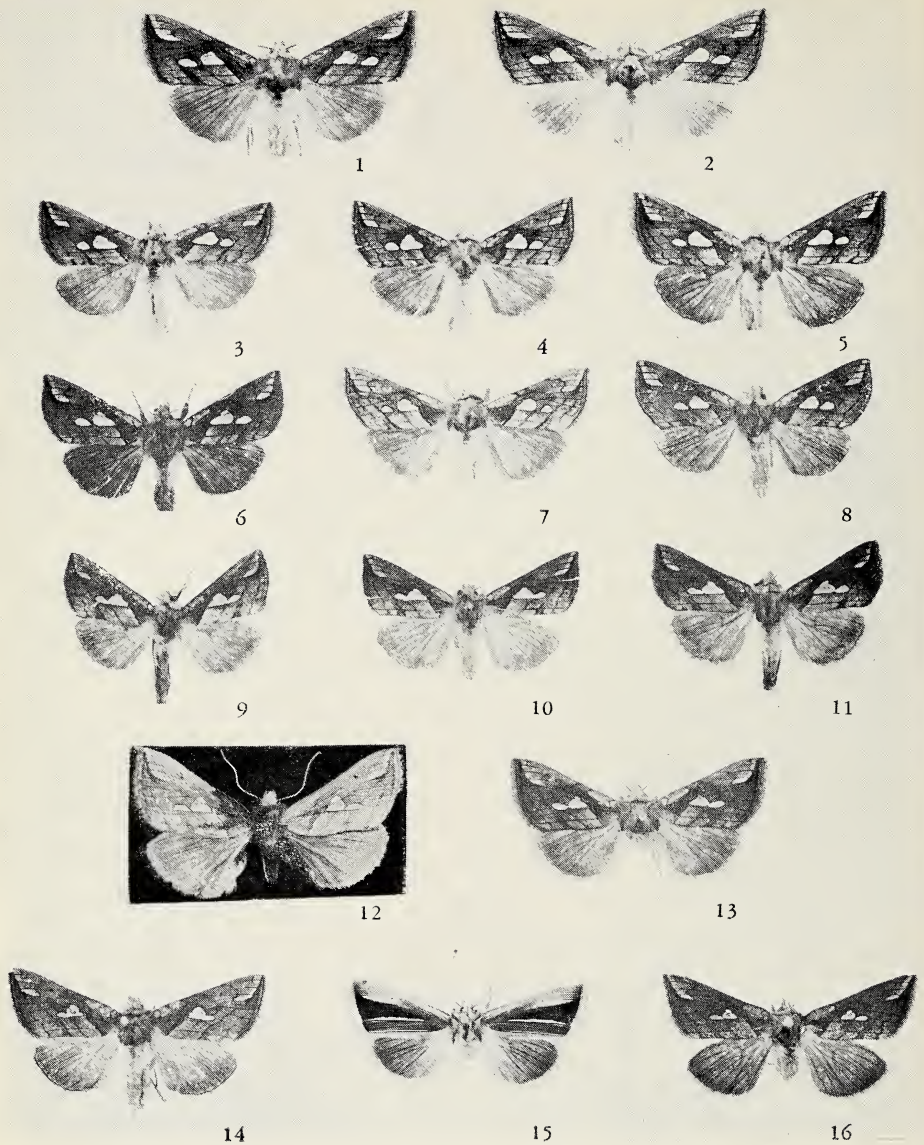


Fig. 3. Female genitalia. 1. *Autographa festucae* (prep. 923); 2. *A. gracilis* (prep. 921); 3. *A. festata* (prep. 887); 4. *A. barbara* (prep. Brit. Mus., Nat. Hist.); 5. *A. putnami* (prep. Brit. Mus., Nat. Hist.); 6. *A. nichollae* (prep. Noct. 4407, Brit. Mus., Nat. Hist.). $\times 8$.

3. *A. putnami* Grote. This North-American species differs on first sight from the "double" by its dull ground colour of the fore wings, but neither are the markings identical. In the latter the antemedian is double in its lower part and the basal one of the two silver discal spots touches this line (just as in *festucae*). In *putnami* this is single or double and the spot does not touch it (at least in the specimens I have seen). The shape of the spots is also quite different, while the lowest apical spot as well as the two discal ones are much smaller. Moreover, in the specimens I could examine, the two discal spots either are confluent or



J. HUISENGA

Fig. 1—2. *Autographa festucae* L. 1. ♂, Apeldoorn, 14.VIII.1953; 2. ♀, Hilversum, 9.VIII.1938. Fig. 3—8. *A. gracilis*, nov. sp. 3. ♂, Helenaveen, 2.VII.1957 (holotype); 4. ♀, Griendsveen, 21.VI.1964 (allotype); 5. ♂, Nijetrijne, 1.VII.1964; 6. ♂, Barton Broad (England), 1.VIII.1962; 7. ♂, Pøl, Als (Denmark), 17.VII.1934; 8. ♂, Lammi (Finland), 20—25.VII.1957. Fig. 9—11. *A. festata* Graeser. 9. ♂, Pompeyefka, Little Chingan Mts., VIII.1910; 10. ♂, Motojondo, Korea, 1935; 11. ♂, Khabarovsk, 28.VI.1910. Fig. 12. *A. barbara* Warren, ♀, Morocco (holotype, photograph Brit. Mus.) (Nat. Hist.), $\times 9/8$. Fig. 13. *A. nichollae* Hampson, ♂, British Columbia. Fig. 14, 16. *A. putnami* Grote. 14. ♂, Calgary (Alberta, Canada), 25.VII.1902; 16. ♂, same data. Fig. 15. *A. venusta* Walker, ♂, Alberta (Canada).

touch each other. As I stated already this is only exceptionally the case in the "double"

In the genitalia I noticed the following differences: the uncus of the ♂ is shorter than in the "double" and the cornutus is differently shaped (the top is more rounded and the thin sclerotized stripes of the latter are absent). In the ♀ the sclerotized patch on the bursa is only bordered by a very short darker ridge, quite different from the long ridge of the "double" and that of *barbara*. I conclude therefore that *putnami* is specifically different from the "double" (and from *A. barbara*).

[In his revision of the North American Plusiinae MCDUNNOUGH mentions three other species belonging to the subgenus, viz. *A. nichollae* Hampson, *A. venusta* Walker, and *A. contexta* Grote. *A. nichollae* (plate 1, fig. 13) resembles *festucae* much more than the "double". Moreover, the shape of the cornutus of the ♂ and of the bursa and its sclerotized patch of the ♀ are so different from those of the "double" that a further discussion would be superfluous (cf. text figures 2 and 3). The two other species have completely different wing markings. *A. venusta* is figured on plate 1, fig. 13, and the genitalia of the male in text figure 2, no. 12.]

So I conclude that the "double" is an undescribed species and hereby I name it *Autographa (Chryspaspida) gracilis*, nov. sp., because I was at once struck by its graceful appearance when I compared it with *A. festucae*.

Holotype: ♂, de Peel (Helenaveen), 2.VII.1957.

Allotype: ♀, Griendsveen, 21.V.1964.

Both type specimens (figured on plate 1, figs. 3 and 4) are in the collection of the Zoological Museum, Amsterdam. The two localities are near the boundary of the provinces of North Brabant and Dutch Limburg.

Description. Span of the fore wings 28—33 mm. Ground colour of these wings rather variable, from clear reddish brown to yellowish brown. Transverse lines clearly visible, much more distinct than in the darker *festucae*. The silver spots make a very pronounced impression principally through the rather short but broad fourth apical one. The two discal spots are distinctly shorter than in *festucae*. Head, collar and patagiae clear rusty-red. The hind wings are paler or darker brownish grey, fringe sometimes of a beautiful red tint.

The characteristic genitalia were already sufficiently discussed in the preceding paragraphs.

Biotope. The species is (at least in the Netherlands) an inhabitant of marshy grounds and is much more strongly bound to this biotope than *A. festucae*, as a result of which it is much more local; in this biotope, however, it is not rare and may even be common, outnumbering *A. festucae*.

Time of appearance. The species has two generations. The first flies from the second half of May till mid August (the dates in Holland are at present from May 21st till August 23rd) with a principal flying time from the end of June till the end of July. The second generation is much scarcer and is known at present to occur from 17 September till 6 October. There exists a striking difference between the two generations of *A. festucae* and *A. gracilis*. In the former the first generation is rather scarce, but the second is common.

Distribution. The species is at present known from several localities in the Netherlands. It also occurs in the British Isles. Mr. A. L. GOODSON informed me that the famous Rothschild-Cockayne-Kettlewell collection in the Zoological Museum at Tring contains specimens from the Norfolk Broads and from a marsh near York. Baron C. DE WORMS told me that he found twelve specimens in the collections of the Hope Department at Oxford, namely nine from Wicken Fen near Cambridge, one from the north in Cumberland and two from the west in Somerset; his own collection also contains several specimens. Finally Mr. E. C. PELHAM-CLINTON of the Royal Museum at Edinburg wrote me, that he had six specimens from Dumfries, Berwickshire, East Lothian and Midlothian in the south of Scotland.

In Denmark the species is widespread. Dr. S. HOFFMEYER informed me that he knows it from Lolland, Sealand and Jutland, also from the island of Als. Later on he wrote that the species is widespread in his country, flying mostly near the coast or other water and always mixed with *festucae*.

The species also occurs in Finland. The Amsterdam collection contains two specimens which were collected by Mr. G. L. VAN EYNDHOVEN at Lammi in July 1957 during a visit to that country.

There can be little doubt that *A. gracilis* also occurs in Germany and Sweden and probably also in the Russian territories along the Baltic.

Biology. No particulars are known apart from the data concerning its flying time and biotope.

Autographa gracilis, nov. sp.

Enige jaren geleden liet de heer C. NIES te Deurne mij een kleine serie zien van een uil, die hij in de Peel gevangen had, en die wij toen niet anders dan als een opvallende vorm van *Autographa festucae* L. konden beschouwen. Bij een volgend bezoek in 1964 kwam het gesprek uiteraard weer op de merkwaardige „vorm” van *festucae*. Ik was toen juist bezig een serie preparaten van *Plasia chrysiis* L. en zijn zogenaamde dubbelganger te maken en het spreekt dus haast vanzelf, dat ik besloot ook de genitaliën van *festucae* en zijn „vorm” eens te bekijken. Ik was eigenlijk niet meer zo heel erg verrast, toen al na het maken van de eerste preparaten onomstotelijk bleek, dat we in dit geval zeker met twee goede soorten te doen hadden.

Naar mijn beste weten is de dubbelganger van *festucae* nog niet beschreven en daar ik van het begin af aan getroffen was door het sierlijke uiterlijk van de vlinder, noem ik hem *Autographa gracilis*, nov. sp.

Hij is van *festucae* te onderscheiden door zijn geringere grootte, helderder (vaak iets roder) kleur van de voorvleugels, duidelijker dwarslijnen, maar vooral door de zilervlekken. Bij *festucae* is de onderste apicale vlek lang en smal, bij *gracilis* kort en breed. Dit is wel het meest opvallende kenmerk. Daarnaast zijn de twee discale vlekken bij *gracilis* korter en soms hoger dan bij *festucae*, al zit hierin enige variatie. Zie vooral de vergrote figuur 1.

Voor de verschillen in de genitaliën van mannetjes en wijfjes moge naar de figuren en de Engelse tekst verwezen worden.

A. gracilis is veel lokaler dan *A. festucae*. De soort is (voor zover we thans

weten) beperkt tot moerassige terreinen, maar kan hier zeer gewoon zijn en de echte *festucae* in aantal flink overtreffen. Overigens zal de verspreiding in Nederland uitvoeriger in het volgende supplement van de Cat. Ned. Macrolepidoptera besproken worden.

Van de biologie is nog weinig bekend. Ook *A. gracilis* heeft twee generaties, maar in tegenstelling tot *A. festucae* is de tweede veel zeldzamer dan de eerste. In het ongunstige seizoen van 1965 werd hij zelfs in het geheel niet waargenomen.

Van de eerste toestanden weten we nog niets. Maar gezien het aantal vlinders, dat in moerassige streken kan voorkomen, moet het niet al te moeilijk zijn in mei of begin juni daar de rupsen te vinden.

De soort is nog vrijwel uitsluitend bekend door vangsten met menglichtlampen. Het gevolg is, dat het aantal wijfjes in de collecties nog zeer gering is.

Daar voeger nooit in moerassen verzameld werd (het was in donker ook vrijwel onmogelijk), is het geen wonder, dat in oudere collecties geen enkel exemplaar van *gracilis* te vinden is. De enige uitzondering is een klein gekweekt wijfje van Weert, dat 1 juli 1914 uit de pop kwam (Zoöl. Mus. Amsterdam, e coll.-SCHUYT). Het valt in niets op dan (nu ik het weet!) door de tekening van de zilvervlekken. Alle hulde dan ook aan de heer NIES, die, doordat hij een serie van de vlinder kon verzamelen, getroffen werd door het andere uiterlijk. Zijn vermoeden, dat ook de vliegtijd (van de eerste generatie) anders zou zijn, blijkt, nu er veel meer materiaal beschikbaar is, niet juist te zijn. In de Catalogus zal ik histogrammen van de twee soorten geven, die dat bewijzen.



Material und Organismen (uitg. Duncker & Humblot, Berlin). Dit nieuwe tijdschrift is bestemd voor de publicatie van artikelen over de aantasting van *dode* (organische en anorganische) stoffen, als hout, papier, textiel, metalen, etc. door *levende* organismen. De hoofdredacteur is Prof. G. BECKER, directeur van de „Bundesanstalt für Materialprüfung“ in Berlin-Dahlem, die o.a. veel gepubliceerd heeft over insekten-aantasting van hout. Deze schade kan, gelijk bekend, van zeer verschillende herkomst zijn, niet alleen van insekten als termieten, borende keverlarven en rupsen, mariene organismen zoals de paalworm (Molusken) en Limnoria (Isopoden), maar ook van fungi en lagere organismen. Het eerste nummer van het tijdschrift, in januari 1966 verschenen, bevat o.a. een artikel van Dr. H. J. HUECK, van het Centraal Laboratorium, T.N.O., Delft, met de titel „The biodeterioration of materials as a part of Hylobiology” ('hylo' komt van het Griekse 'hulè' = materie, materialen). Dezelfde schrijver heeft al verschillende publicaties op zijn naam staan over het vergaan van papier, motten-echtheid, e.d. De aantasting van moderne materialen als plastics en kunstvezels (bijv. door mieren en ratten) staat uiteraard tegenwoordig in het middelpunt van de belangstelling. Vooral het gedrag van deze stoffen in een tropisch klimaat dient nog verder onderzocht te worden.

Het is te verwachten, dat verschillende instituten in ons land (L.H., T.H., K. Inst. v. d. Tropen, enz.) een abonnement op dit tijdschrift zullen nemen. — KHV.

Euphyia luctuata Schiff. (Lep., Geom.). In de uitgestrekte dennenbossen van Annendaal-Putbroek (gem. Echt) ontdekte ik begin juni 1964 een rijke populatie van deze mooie spanner. Er vlogen honderden vlinders in 2 generaties.

In 1962 ving ik één ex. te Montfort, in 1964 één ex. te Odiliënberg (Munnicksbosch). A. W. P. MAASSEN, Montfort (L.).